ABSTRACT - The California Department of Forestry and U.S. Forest Service, Pacific Southwest Forest and Range Experiment Station have been conducting a paired watershed study on Jackson Demonstration State Forest for 24 years. The South Fork watershed phase of the study involved monitoring the impacts of road construction (1967) and selective tractor logging (1971-1973) on water and sediment discharge. The present North Fork phase of the study uses an extensive network of flumes with pumping samplers to monitor the impacts of clearcutting a portion of the North Fork utilizing upper slope road construction and cable yarding techniques. Principle objectives are to identify sediment sources through the watershed and evaluate the magnitude and movement of sediment. "Cumulative" effects of logging will be a specific concept tested as clearcutting progresses from the headwaters to the weir.

South Fork Phase-History/Objectives

Caspar Creek, a part of the California Department of Forestry's Jackson Demonstration State Forest has been the site of an ongoing paired watershed study since 1962. The project is a cooperative study between the California Department of Forestry and the U.S. Forest Service, Pacific Southwest Forest and Range Experiment Station. Humboldt State University and the California Department of Fish and Game have also been involved in the past.

Two similar watersheds, the North and South Forks of Caspar Creek (1195 and 1047 acres respectively) comprise the study area. Both drainages were clearcut and burned in the late 1800's resulting in well stocked stands of young growth redwood, Douglas-fir, grand fir, western hemlock and bishop pine.

In 1962, a rectangular weir with a 120 degree v-notch was constructed at each fork. Continuous hydrologic data including streamflow, precipitation, suspended sediment and bedload measurements have been collected to the present time.

The North Fork watershed was chosen as a control because of its younger stand age. The two forks were then calibrated over a five year period. The calibration process is necessary in a paired